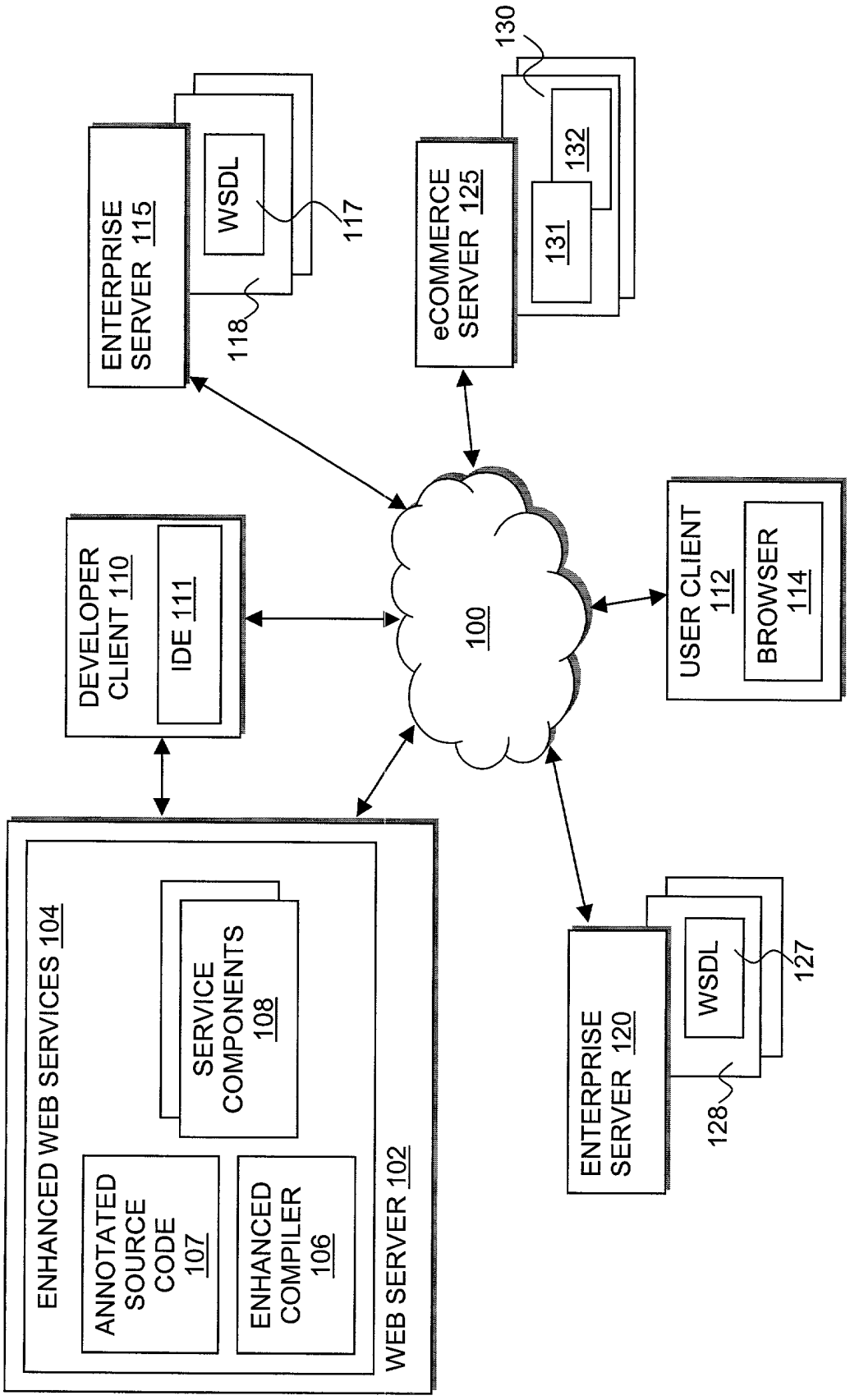
ENTERPRISE SERVER 115
WSDL
117
118
130
eCOMMERCE SERVER 125
131
132
DEVELOPER CLIENT 110
IDE 111
100
USER CLIENT 112
BROWSER 114
ENHANCED WEB SERVICES 104
SERVICE COMPONENTS 108
ANNOTATED SOURCE CODE 107
ENHANCED COMPILER 106
WEB SERVER 102
ENTERPRISE SERVER 120
WSDL
127
128

FIG. 1

20220-16728001

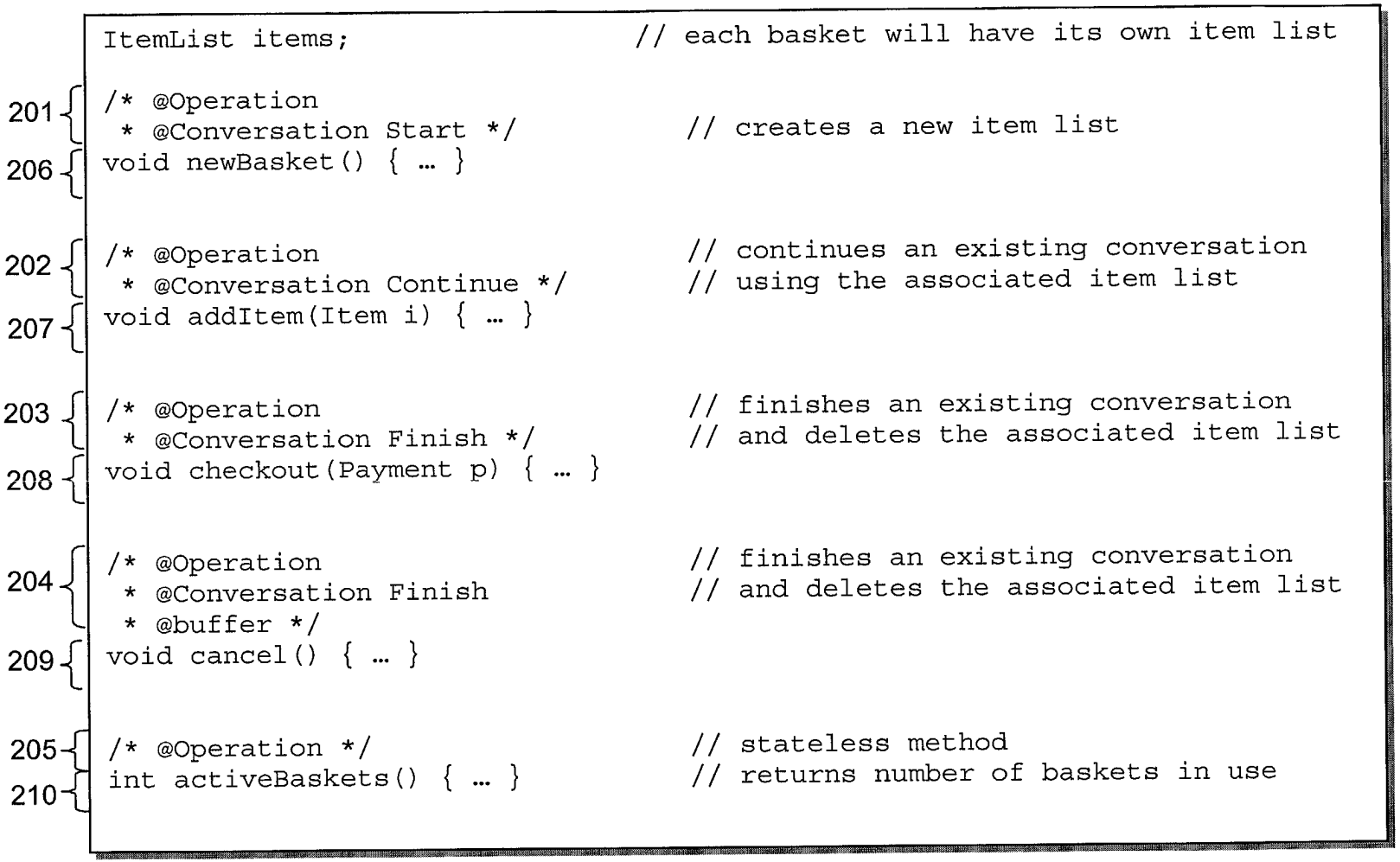

FIG. 2

COLUMBIA IP LAW GROUP, PC TELEPHONE: 503-595-2800

```
/**
   * @operation
    */
  public String greeting(String firstname, String lastname)
  {
    Calendar cal =
      Calendar.getInstance(TimeZone.getDefault());
    SimpleDateFormat sdf =
      new java.text.SimpleDateFormat("yyyy-MM-dd HH:mm:ss");

    return "Hello " + firstname + " " + lastname +
           " at " + sdf.format(cal.getTime());
  }
```

FIG. 3A

```
POST /app/mypackage/CreditReport.jws HTTP/1.1
Host: www.company.com
Content-Type: text/xml; charset="utf-8"
Content-Length: 648
SOAPAction: "Some-URI"

<soap:Envelope
  xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:cgc="http://bea.com/SOAP/conversation"
  soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"/>
   <soap:Header>
   </soap:Header>
   <soap:Body>
      <m:greeting xmlns:m="http://www.company.com/app/mypackage/CreditReport.jws">
        <firstname>Jane</firstname>
        <lastname>Doe</lastname>
      </m:greeting>
    </soap:Body>
</soap:Envelope>
```

FIG. 3B

COLUMBIA IP LAW GROUP, PC
TELEPHONE: 503-595-2800

```
HTTP/1.1 200 OK
Content-Type: text/xml; charset="utf-8"
Content-Length: 574

<soap:Envelope
  xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
  soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"/>
   <soap:Header>
   </soap:Header>
   <soap:Body>
        <m:greetingResponse
          xmlns:m="http://www.company.com/app/mypackage/CreditReport.jws">
            <result>Hello Jane Doe at 2001-08-15 16:18:04</result>
        </m:greetingResponse>
   </soap:Body>
</soap:Envelope>
```

FIG. 3C

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/"
            xmlns:c="http://openuri.org/soap/conversation/">
  <s:Header>
    <c:conversationID>4232-133214-3223132:42332-3144-2332251</c:conversationID>
    <c:defaultCallbackURL>
       http://original.com/foo/Callbacks.jwi
    </c:defaultCallbackURL>
  </s:Header>
  <s:Body>
    <!-- contents omitted -->
  </s:Body>
</s:Envelope>
```

FIG. 4

COLUMBIA IP LAW GROUP, PC
TELEPHONE: 503-595-2800

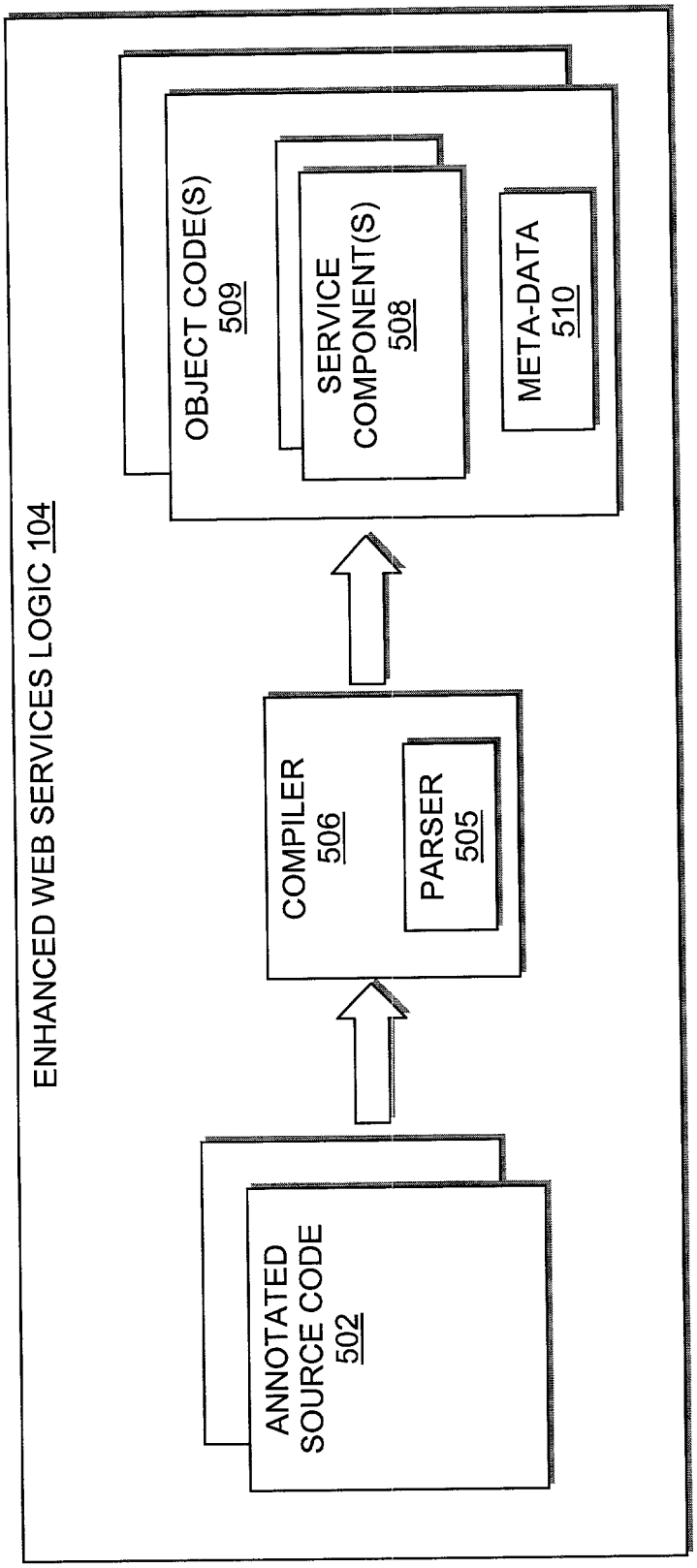
ENHANCED WEB SERVICES LOGIC 104
ANNOTATED SOURCE CODE 502
COMPILER 506
PARSER 505
OBJECT CODE(S) 509
SERVICE COMPONENT(S) 508
META-DATA 510

FIG. 5

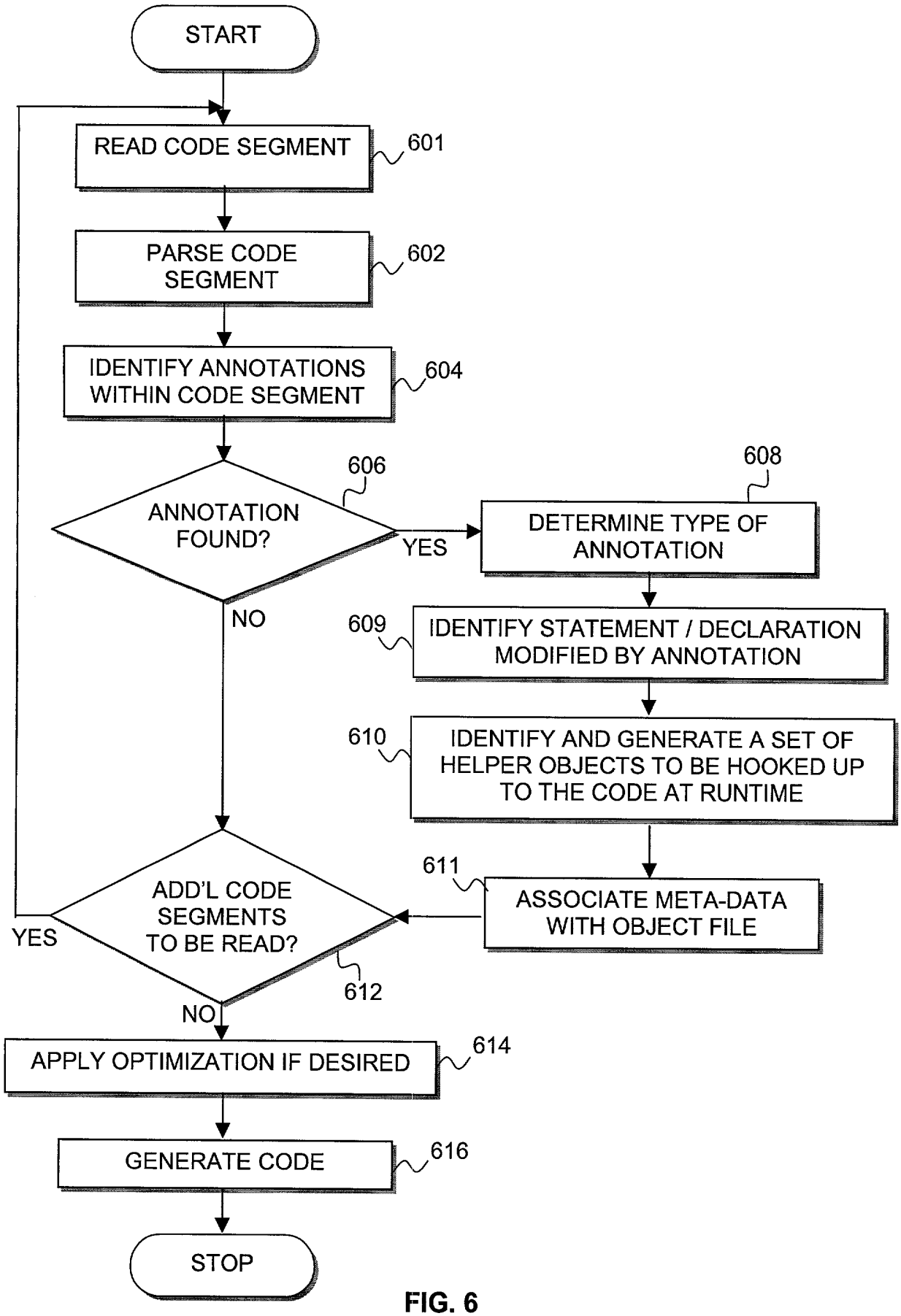
START
READ CODE SEGMENT
601
PARSE CODE SEGMENT
602
IDENTIFY ANNOTATIONS WITHIN CODE SEGMENT
604
606
ANNOTATION FOUND?
YES
608
DETERMINE TYPE OF ANNOTATION
NO
609
IDENTIFY STATEMENT / DECLARATION MODIFIED BY ANNOTATION
610
IDENTIFY AND GENERATE A SET OF HELPER OBJECTS TO BE HOOKED UP TO THE CODE AT RUNTIME
611
ASSOCIATE META-DATA WITH OBJECT FILE
ADD'L CODE SEGMENTS TO BE READ?
YES
612
NO
APPLY OPTIMIZATION IF DESIRED
614
GENERATE CODE
616
STOP

FIG. 6

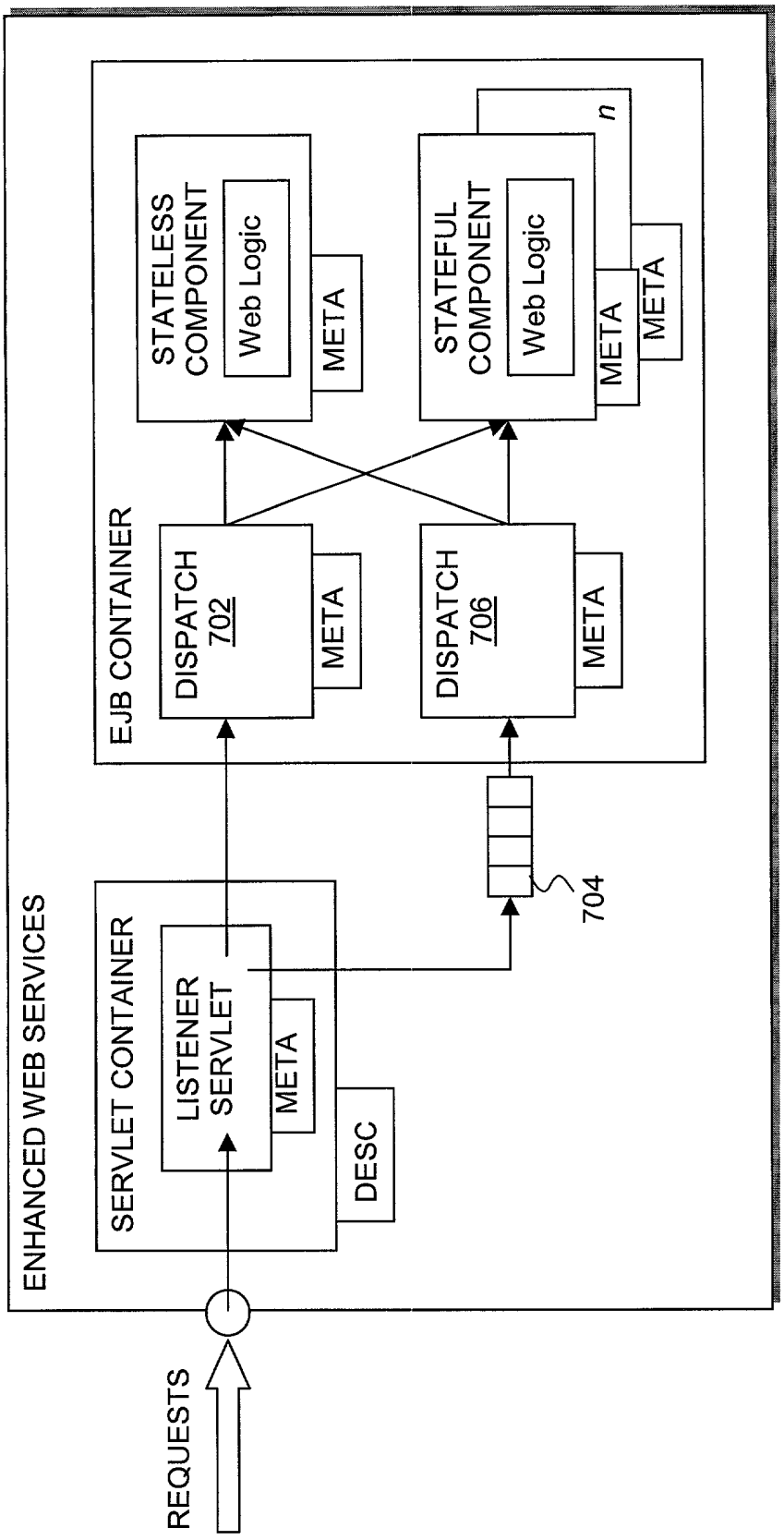
ENHANCED WEB SERVICES
SERVLET CONTAINER
LISTENER SERVLET
META
DESC
EJB CONTAINER
DISPATCH 702
META
DISPATCH 706
META
704
STATELESS COMPONENT
Web Logic
META
STATEFUL COMPONENT
Web Logic
META
META
n
REQUESTS

FIG. 7

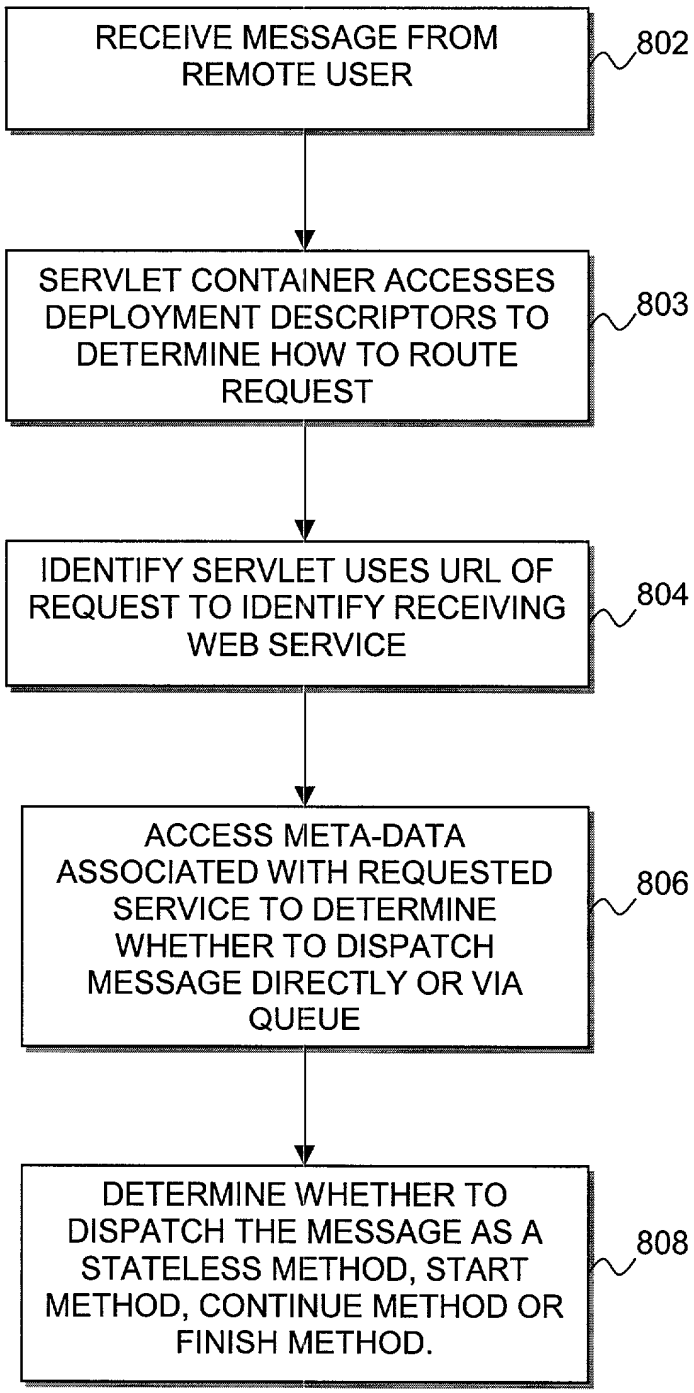
RECEIVE MESSAGE FROM REMOTE USER
802
SERVLET CONTAINER ACCESSES DEPLOYMENT DESCRIPTORS TO DETERMINE HOW TO ROUTE REQUEST
803
IDENTIFY SERVLET USES URL OF REQUEST TO IDENTIFY RECEIVING WEB SERVICE
804
ACCESS META-DATA ASSOCIATED WITH REQUESTED SERVICE TO DETERMINE WHETHER TO DISPATCH MESSAGE DIRECTLY OR VIA QUEUE
806
DETERMINE WHETHER TO DISPATCH THE MESSAGE AS A STATELESS METHOD, START METHOD, CONTINUE METHOD OR FINISH METHOD.
808

FIG. 8

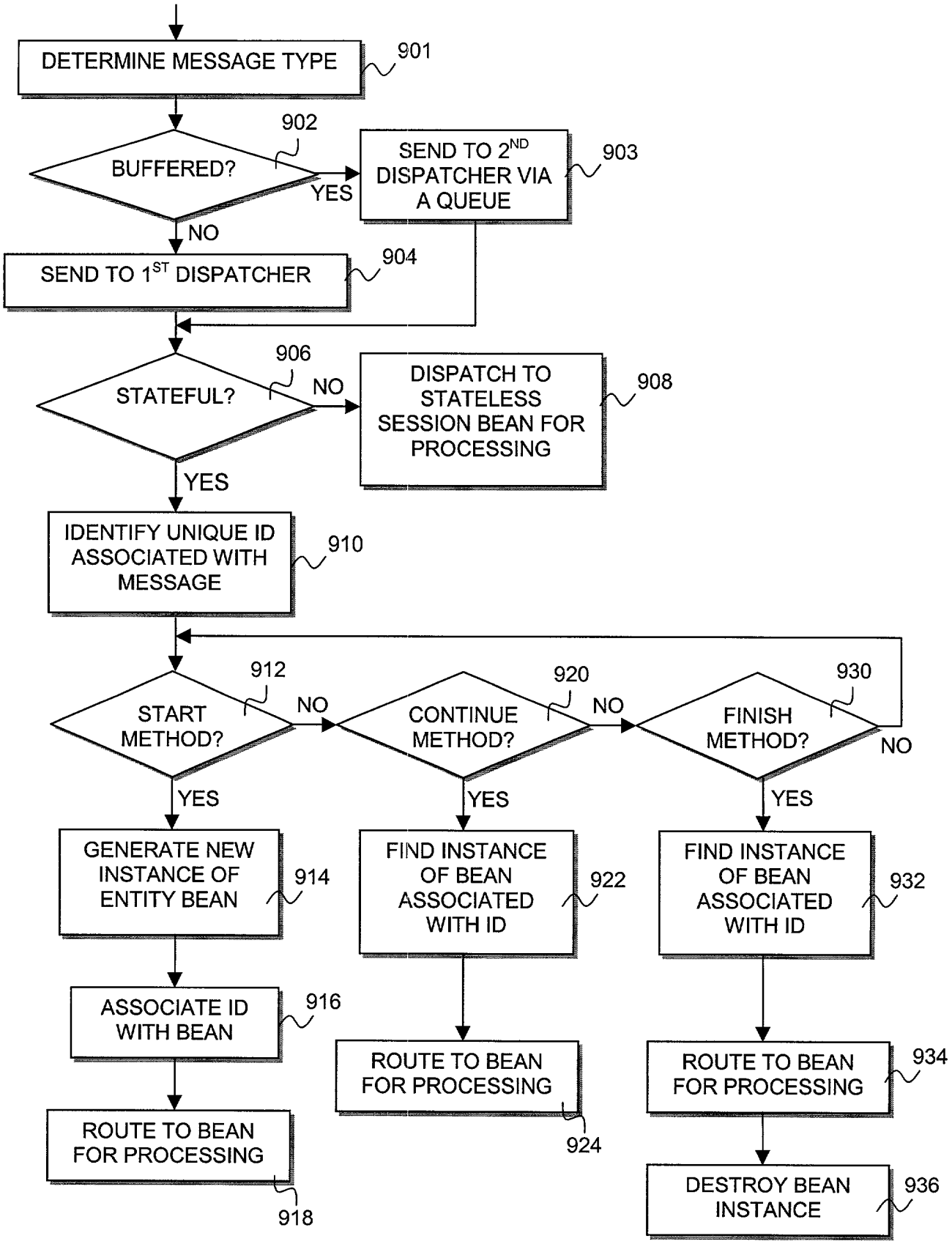
DETERMINE MESSAGE TYPE
901
BUFFERED?
902
YES
SEND TO 2ND DISPATCHER VIA A QUEUE
903
NO
SEND TO 1ST DISPATCHER
904
STATEFUL?
906
NO
DISPATCH TO STATELESS SESSION BEAN FOR PROCESSING
908
YES
IDENTIFY UNIQUE ID ASSOCIATED WITH MESSAGE
910
START METHOD?
912
NO
CONTINUE METHOD?
920
NO
FINISH METHOD?
930
NO
YES
YES
YES
GENERATE NEW INSTANCE OF ENTITY BEAN
914
FIND INSTANCE OF BEAN ASSOCIATED WITH ID
922
FIND INSTANCE OF BEAN ASSOCIATED WITH ID
932
ASSOCIATE ID WITH BEAN
916
ROUTE TO BEAN FOR PROCESSING
924
ROUTE TO BEAN FOR PROCESSING
934
ROUTE TO BEAN FOR PROCESSING
918
DESTROY BEAN INSTANCE
936

FIG. 9

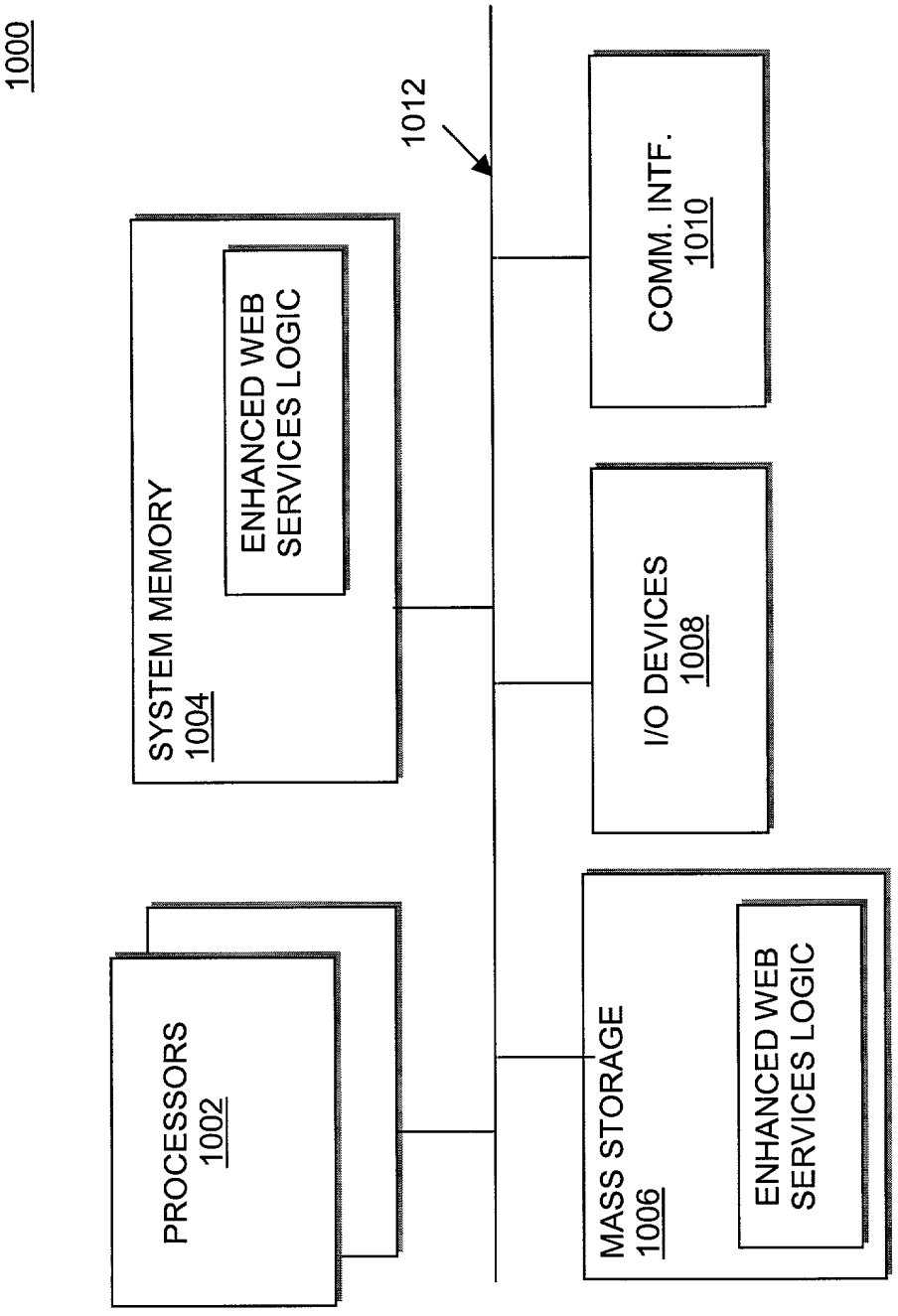
1000
1012
SYSTEM MEMORY
1004
ENHANCED WEB SERVICES LOGIC
COMM. INTF.
1010
I/O DEVICES
1008
PROCESSORS
1002
MASS STORAGE
1006
ENHANCED WEB SERVICES LOGIC

FIG. 10